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Planting trees to increase food security? The case study of the groundnut basin of Senegal

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In Senegal, areas covered with scattered trees, intentionally selected and preserved by the populations, are dominant features of the landscapes. Numerous studies have highlighted the multifunctionality of these parklands, where people use trees as fodder for herds, as natural fertilizers for crops, and food, wood and pharmaceutical providers for households livelihoods (eg. Sène 2004; Baudron et al, 2017). A study conducted in Mali conclude that parklands were responsible for between 26 percent and 73 percent of household revenue (Faye et al. 2010). Regardless of this, the role of the parklands and the importance of their preservation remains little discussed in rural development policies and programs, and the potential of the tree in reducing food insecurity remains poorly explored. As human pressure on lands, increase of herds demography and climate change effects are currently threatening parklands (Bayala 2014), the need to better understand the contribution of trees in household's resilience takes on increasing importance.

How might trees affect livelihoods and food security of farming families? Based on a dense survey, our work aims at improving our understanding on the links between parklands and household food security.

Our study area is the groundnut basin in Senegal where we choose the arrondissements of Niakhar (Fatick region) and Nioro du Rip (Kaolack region), of approximatively 400 km² each. They differ in the parkland composition in terms of tree species and density, and in the social rules of access to the trees. In each of these areas, 200 households were surveyed over the 2018 cropping season. The questions focused on the description of the parkland to which they had access (collective or individual access), their uses of products from trees, their production system and their non-farm activities. For each household, two indicators of food security level, frequently used in the literature; were calculated as well: the Household Food Insecurity Access Scale (HFIAS) and the Coping Strategies Index (CSI).

Our preliminary results show that parklands have an impact on household food security, particularly in sustaining nutritional intake, and highlight the complementary roles through time of different tree species in coping strategies. We then estimated incomes from the sale of tree products to highlight the economic importance of trees. Our results also demonstrate the importance of collective areas for families whose state of food insecurity is the most critical.

By replacing the tree at the heart of the coping strategies of households in times of hunger, this study contributes to providing scientific knowledge that could then be used to advise policies and programs addressing food insecurity.

Keywords: food security, parklands, senegal, coping strategies.

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